



AUG 23 1983

Honorable William P. Clark
Assistant to the President for
National Security Affairs
The White House
Washington, D.C. 20500

Dear Bill,

This is the appropriate time for the United States to take its next major step in advancing the technology and utilization of space systems. There has been no major official guidance in this area since that of President Nixon.

No initiative will reflect more favorably upon the United States and this Administration than the development of a permanent manned station in space.

The first 25 years of the space program have provided us with superb governmental and commercial capabilities in space. We now have the Space Shuttle to provide routine transportation of crews and machines to and from space. That capability should now be harnessed to the greater governmental and commercial opportunities that a space station will make possible.

My chief concern is that the options discussed at the SIG (Space) meeting are too timid. If we are to obtain the industrial stimulation and receive the benefits I believe to be possible, we must move aggressively. None of the options presented is sufficient by itself. For this reason, I advocate a four-part program in space.

NASA wishes to begin the development of a space station that will be placed in an orbit at a relatively small angle with respect to the equator. They should do so as soon as possible. The Soviets are already there and are learning the things that we should be learning. Each delay we create -- for the very rational reason of spending more effort on studying what we should do -- puts us farther behind. The station should have a full capability to serve scientific and commercial needs as early in its evolution as is feasible. This implies that it be accompanied by such support facilities as necessary to produce early payoffs -- e.g., co-orbiting man-tended platforms for commercial materials processing activities and man-tended platforms in polar orbit for remote sensing applications.

Defense is concerned that a manned space station program will dilute NASA's emphasis on bringing the Space Shuttle to a fully operational state and improving its capabilities. This is a reasonable concern. The Nation requires a fully operational Space Shuttle, and it needs a Shuttle that can remain in orbit for longer periods than the current system. This is not a separate option from pursuing the development of a space station; it is a necessary capability for all future scenarios for the expanded use of space systems. It must be carried out in parallel with the space station and will involve the production of a fifth orbiter specially outfitted for enhanced orbital capability. Commercial and governmental users will require extended periods in orbit beyond the current five to seven days. Indeed, it is not inconceivable that the assembly of a space station may be more efficiently carried out with the extended orbit time.

The last two parts of the program I advocate are not directly aimed at the space station, but at programs with which the space station must coexist.

The science and applications community bears many scars from the Apollo and Space Shuttle programs. The perception, no matter what the reality may be, is that the user community's interests were always subordinated to the more glamorous manned activities. To prevent a large and counterproductive outcry from that community, the space station program must have a parallel effort, separately budgeted, to support the uses of the station and its companion man-tended platforms.

Finally, our national technical means of arms control verification are planned to be modernized and upgraded over the next decade. The intelligence community is concerned that the space station effort could affect adversely that modernization. This must not happen. Our national technical means are vital to our national security and the space station will provide an invaluable complement to them, but not a substitute.

The above four-part program will ensure U.S. leadership in space, revitalize our civilian space program, and create the capabilities needed for the expansion of U.S. industrial activities in space. I believe that what the President has to consider very carefully are the consequences -- both military and industrial -- of our being second in this effort.

Sincerely,



Malcolm Baldrige

BACKGROUND/HISTORICAL EVOLUTION

- o Space Station concepts have been under study since the mid-60's
 - starting with Saturn/Apollo derivation (Manned Orbital Research Laboratory)
 - evolved to Skylab development in late '60's/early '70's
- o Skylab was first U.S. Space Station
 - launched in May, 1973
 - useful life of 1-1/2 years
 - three crews (three men each) habited for 28, 58 and 84 days
 - demonstrated that humans could live and work effectively in space
 - entire \$2.5 billion mission was salvaged through early EVA repair
 - valuable real-time solar science performed
- o advanced concept studies continued through 1970's
 - Spacelab
 - Manned Orbital Systems Concept
 - Geosynchronous Space Station
 - Space Construction Base
 - Power Systems (PEP, 25 kw)
 - Platforms
 - Space Operations Center
- o Original STS concepts included both Shuttle and Space Station
 - decision made to develop delivery system first
 - Spacelab designed as near-term laboratory but, limited to Shuttle availability/stay time
 - with Shuttle operational makes sense to plan for Space Station now

SPACE STATION TASK FORCE ORGANIZATION/APPROACH

- o Established in May, 1982 by the NASA Administrator
- o NASA-wide activity: Centers and Headquarters
 - includes detailees from 8 field centers plus Headquarters program and staff offices
- o Provide focus and direction for the agency's Space Station planning activities
- o Define possible Space Station initiative
 - mission requirements
 - architectural options
 - trade studies
 - advanced development
 - systems engineering/concept development
- o Develop management/acquisition plans

SPACE STATION MISSION REQUIREMENTS STUDIES

- o 8 month contracted studies by Boeing, General Dynamics, Grumman, Lockheed, Martin-Marietta, McDonnell Douglas, Rockwell and TRW
- o Final briefings - April 5-8, 1983, Washington, DC
- o General conclusions:
 - Unanimous agreement on need for permanent manned Space Station
 - All mission areas appear to derive significant, often enabling benefits from existence of a Space Station
 - science & applications
 - technology development
 - commercial
 - national security
 - Initial station in low inclination orbit with unmanned platform in polar orbit
 - Significant savings derived from space-based OTV
 - There are no technology "show stoppers"
 - Need for increased power will be a challenge
- o Concurrent mission requirements studies by international community (ESA, Japan, Canada, German, Italy) to be completed April/May 1983
- o Total cost of Mission Requirements Study
 - NASA \$6.0
 - DOD .3
 - \$6.3 million

PRESIDENTIAL ANNOUNCEMENT

We are in the midst of history, surrounded by reminders of America's leadership in space. America's first satellite, Explorer I, was launched from the Cape in 1958. Since that momentous day, the United States' space program has been characterized by the acceptance of seemingly impossible challenges. And, nowhere have these challenges been as critical as in our manned space programs. Mercury, Gemini, Apollo, Skylab, and Shuttle. The whole world has watched Americans meet and beat the challenges.

As a nation, we are committed to leadership in space and to technological superiority. We now stand at the edge of a new, great opportunity. The Space Shuttle -- the key to our routine access to space -- has just completed its eighth flight. America has been in space for 25 years and we are second to none. I have decided that it is time for us to take the next bold step forward. I have therefore directed NASA to begin immediately the development of a permanently based manned Space Station. By 1991, Americans will be living and working in space permanently.

The Space Station is a place where we can do important work in space. It will facilitate extensive commercial use of space by providing capabilities that are not now available. It will enable the commercial production of critical materials that cannot be obtained on earth, such as extremely pure pharmaceuticals. It will serve as a permanent base for efficient satellite tending and servicing, thereby increasing the lifetime of our expensive space assets. It will also allow us to upgrade our space systems as technology improves. From its Space Station, the United States will assemble and launch extremely large space structures such as antennas, telescopes and satellites. In the scientific area, the Space Station will provide a unique national capability to conduct space-based research in

areas such as astrophysics, solar system exploration, earth science, life sciences, materials processing and communications. Space Station research focused on extending man's stay-time in space could permit future manned exploration and exploitation of space. Thus, in the longer term, a Space Station will provide the necessary first step for future historical advances in space.

Our civil space program has been conducted since its beginning in close cooperation with other countries. Foreign participation in this highly visible program will allow us to continue working with our friends and allies. It is important for us to recognize that in relationships that are marked by competition in high technology, there is ample room for cooperation and shared benefits.

The undertaking of this major project will contribute to a revitalization of the aerospace industry and broad segments of the non-aerospace industry. It will also stimulate the development of new technology just as other previous technological programs of this magnitude have done. And this is just the beginning. A Space Station will provide us the opportunity to learn through experience and to uncover new ways of using space for peaceful purposes for the benefit of all mankind.